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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,088	07/29/2003	Gordon W. Braudaway	YOR920030314US1	5968

48233 7590 08/19/2008
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EXAMINER

WASHINGTON, JAMARES

ART UNIT	PAPER NUMBER
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2625

MAIL DATE	DELIVERY MODE
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08/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/629,088

Applicant(s)

BRAUDAWAY ET AL.

Examiner

JAMARES WASHINGTON

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-12,14 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-12,14 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 22, 2008 has been entered.

Response to Amendment

Applicant's amendments and response received May 22, 2008 have been entered. Claims 1-3, 5-12, 14 and 16 are currently pending. Claims 1, 8 and 11 have been amended to distinguish over the prior art of record. Claim 4 has been canceled. Amendments and response are addressed hereinbelow.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 5, 7-9, 11, 12, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglas U. Mennie et al (US 6721442 B 1) in view of Eric R. Lee et al (US 6786954 B 1) and Christian Voellmer et al (US 6439395 B1).

Regarding claim 1, Mennie et al discloses a method of deterring document counterfeiting comprising:

providing at least one authentic hard-copy document (Fig. 21 "Learn Mode" step 2114), color scanning a plurality of candidate documents to form scanned documents (column 2 lines 66 through column 3 line 3) each having a two-dimensional array of image pixels for each candidate document (Fig. 22 numerals 2214 and 2216, "X" and "Y" dimensions);

searching each array for said at least one mark ("...scanning full color characteristics of a document, processing data corresponding to the characteristics scanned..." at column 3 lines 16-19; Indicating a color characteristic determines the evaluation of subsequent documents).

Mennie et al fails to teach each of said authentic hard-copy document including at least one mark having at least one color that is out of gamut of a printing device having at least three ink colors, said out of gamut color being printed using a custom-color ink.

Lee et al, in the same field of endeavor of document security using color to determine authenticity ("The present invention also relates to an ink which can be used for labeling an object (for example, a document or other object) with identifying markings which can be rapidly verified as authentic and which are highly resistant to counterfeiting" at column 1 lines 15-19; Lee), teaches at least one out-of-gamut color mark and a hard-copy document including at least

one mark having at least one color that is out of gamut of a printing device having at least three ink colors (Column 17 lines 62-67 and column 18 lines 1-4; Lee. Indicating the mark/ink is out-of-gamut of publicly available hardware). Lee teaches that said out of gamut color is capable of being printed using custom-color ink (Col. 8 lines 8-17 wherein "the present invention can be used in combination with conventional security printing methods...[i.e.,] custom inks..." may be used. See also Col. 17 lines 62-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of discriminating authentic documents from counterfeit documents as disclosed by Mennie et al to utilize the teachings of Lee et al where an authentic hard-copy includes at least one mark having at least one color that is out of the gamut of a printing device having at least three ink colors because "high security is desired for creating authentication marks that will not require that the marks be reproducible by publicly available hardware" (column 17 lines 62-64; Lee). **Regarding the claim limitation "wherein said out of gamut color produced by said custom color ink is selected from a differential gamut color volume lying outside a printable colors gamut volume but inside both an object color's gamut volume and a gamut of physically realizable colors of a 3-dimensional color space",** the claimed subject matter is met when a selected color lies outside the printer's color gamut but inside an object's color gamut since the entirety of an object colors gamut would always lie within the physically realizable colors of a 3-dimensional color space. The object color gamut will be read as the gamut created by adding the new custom ink to the existing printing gamut previously disclosed by Lee. Adding a new colorant to a printing system creates a new gamut. Therefore, Lee teaches wherein said out of gamut color produced by said custom color ink (Col.

17 lines 62-64) is selected from a differential gamut color volume lying outside a printable colors gamut volume (The ink was previously shown to be outside a publicly available printer's gamut) but inside both an object color's gamut volume (The new ink introduced to the system to create the color which is not reproducible by publicly available hardware creates a new gamut when added to the existing gamut of a publicly available printer) and a gamut of physically realizable colors of a 3-dimensional color space (Both gamuts would have to be within the gamut of all realizable colors).

Mennie et al fails to disclose or suggest sorting said plurality of candidate documents into a first group of scanned documents not having said at least one out-of-gamut color mark, and into a second group of scanned documents having said at least one out-of-gamut color mark, so that said scanned documents in said first group being characterized as counterfeit, and said scanned documents in said second group being characterized as authentic.

Voellmer et al, in the same field of endeavor of discriminating counterfeit documents from authentic documents ("To permit bank notes which the test device detects as being suspected forgeries or unidentifiable to be sorted out separately as early as possible" at column 2 line 10), teaches sorting a plurality of documents into a first group of scanned documents not having said at least one out-of-gamut color mark (Documents not having said at least one out-of-gamut color mark (as rejected above Mennie in view of Lee) are documents found to be counterfeit or forged therefore "Reject pocket 10 disposed in the immediate vicinity of the input pocket is intended for unidentifiable or suspected counterfeit notes which must be subjected to a check by the operator" at column 3 lines 17-20) and into a second group of scanned documents having said at least one out-of-gamut color mark (Documents containing said at least one out-of-

gamut color mark are documents found to be authentic therefore Fig. 1 numeral 12 (or 13-15 according to currency type) "output pocket") so that said scanned documents in said first group being characterized as counterfeit, and said scanned documents in said second group being characterized as authentic.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method as disclosed by Mennie et al in view of Lee et al wherein counterfeit documents are discriminated from authentic documents by using an out-of-gamut color mark to involve the process of sorting the documents according to authenticity as taught by Voellmer et al to avoid confusion between the two if the authentic document is to be further examined or determined authentic from the first determination.

Regarding claim 2, Mennie et al discloses the method as recited [in] claim 1, wherein each of said pixels has at least three color pixel values (column 2 lines 4-11).

Regarding claim 5, Mennie et al discloses the method as recited claim 1, wherein the step of providing authentic hard-copy documents' includes providing a plurality of bank checks (Column 5 lines 51-59).

Regarding claim 7, Mennie et al discloses the method as recited [in] claim 1, further comprising employing an authentication test taken from a group of authentication tests consisting of:

gamut color size correspondence; gamut color location correspondence; magnetic number correspondence ("The scanhead(s) 70 may perform magnetic, optical and other types of sensing to generate signals that correspond to characteristic information received from a bill 44) at column 5 lines 62-65, Mennie and column 29 lines 33-47, Mennie);

checking account pattern-of-use exception;

unexpected presence of ultraviolet fluorescing (column 28 lines 23-32, Mennie);

unexpected presence of thermochromic responding;

unexpected presence of laser resonating inks;

unexpected absence of ultraviolet fluorescing;

unexpected absence of thermochromic responding;

unexpected absence of laser resonating inks; and

any combination of these authentication tests. (If one of the claim limitations is met, then the claim limitation as a whole is met).

Regarding claim 8, Mennie in view of Lee and Voellmer discloses an apparatus performing the method as rejected in claim 1 comprising:

means for providing at least one authentic hard-copy document ("...ultra-high resolution print heads and printers could be custom made..." at column 18 lines 3 and 4, Lee), each said authentic hard-copy document including at least one mark having at least one color that is out-of-gamut of a printing device having at least three ink colors, said out of gamut color being printed using a custom-color ink (see rejection of claim 1);

means for color scanning a plurality of candidate documents in forming a two-dimensional array of image pixels for each candidate document ("... currency handling system 10" at column 30 line 21);

means for searching each array for said at least one out-of-gamut color mark (Fig. 1 numeral 70); and

means for sorting (see rejection of claim 1) said plurality of candidate documents into a first group of scanned documents not having said at least one out-of-gamut color mark, and into a second group of scanned documents having said at least one out-of-gamut color mark, so that said scanned documents in said first group being characterized as counterfeit, said scanned documents in said second group being characterized as authentic (see rejection of claim 1); and

wherein said out of gamut color produced by said custom color ink is selected from a differential gamut color volume lying outside a printable colors gamut volume but inside both an object colors gamut volume and a gamut of physically realizable colors of a 3-dimensional color space (see rejection of claim 1).

Regarding claim 9, discloses the apparatus as recited [in] claim 8, wherein the means for providing authentic hard-copy documents includes means for providing a plurality of bank checks (see rejection of claim 5).

Regarding claim 11, Mennie discloses a method comprising imparting a plurality of marks onto a hard copy using at least one custom colored ink, and subsequent evaluation of a

scanned and digitized image of said hard copy for the purpose of counterfeit detection (see rejection of claim 1 above), including the steps of:

providing a hard copy (see rejection of claim 1);

imparting onto said hard copy at least one visible mark using at least one chosen colored ink, each said marks covering an area of coverage on said hard copy and each area of coverage having defined position within said hard copy (see rejection of claim 1);

scanning said hard copy to form a digitized image having at least three image planes (Col. 19 lines 63-67 and Col. 20 lines 1-5), each said image plane being represented by an array having pixel brightness data for a plurality of pixels, each of said pixels having at least three color components and having a pixel position (see rejection of claim 2);

examining the pixels of said digitized image corresponding to the at least one said area of coverage (see rejection of claim 1); and

determining the presence or absence of the expected color in said at least one area of coverage based on the values of the color components of pixels corresponding to and lying within said area of coverage (see rejection of claim 1); and

wherein said expected color is an out of gamut color produced by said at least one custom-colored ink, said out of gamut color selected from a differential gamut color volume lying outside a printable colors gamut volume but inside both an object colors gamut volume and a gamut of physically realizable colors of a 3-dimensional color space (see rejection of claim 1).

Regarding claim 12, Mennic discloses a method as recited in claim 11, wherein said scanned and digitized image is transaction document (see rejection of claim 5).

Regarding claim 14, Mennie discloses a program storage device readable by machine (Fig. 1 numeral 56 memory), tangibly embodying a program of instructions executable by the machine to perform method steps for authentication testing (see rejection of claim 13), said method steps comprising the steps of claim 1 (see rejection of claim 1).

Regarding claim 16, Mennie discloses a program storage device readable by machine (Fig. 1 numeral 56 memory), tangibly embodying a program of instructions executable by the machine to perform method steps for authentication testing ("...uses full color scanning to discriminate and/or authenticate a variety of different currencies" at column 2 line 35) said method steps comprising the steps of claim 11.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mennie et al in view of Lee et al and Voellmer et al as applied to claim 1 above, and further in view of John S. Ligas et al (US 5289547).

Regarding claim 3, Mennie et al discloses the method as recited [in] claim 1.

Mennie et al fails to teach or suggest wherein the step of color scanning includes employing a colorimeter.

Ligas et al, in the same field of endeavor of document authentication ("The authenticating method of the present invention may be used to authenticate security documents and other articles of commerce" at column 2 lines 58-60), teaches employing a colorimeter ("The means

for verification may be by a visual observation or by the use of an instrument such as a colorimeter" at column 10 line 39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of document authentication as disclosed by Mennie to employ a colorimeter as taught by Ligas because a colorimeter is a well-known instrument in the art of image processing for comparing or matching colors.

5. Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglas U. Mennie et al (US 6721442 B1) in view of Eric R. Lee et al (US 6786954 B 1) and Christian Voellmer et al (US 6439395 B1) as applied to claim 1 above, and further in view of Osama M. Alattar (US 2002/0126873 A 1).

Regarding claim 6, Mennie discloses the method as recited [in] claim 1, further comprising:

noting correct pixel locations of said at least one color in said authentic document (Fig. 21, numeral 2106. Determining the bill's orientation gives the location information of the indicia or "color" patch to be sensed as explained in column 43 lines 54-60);

determining particular pixel locations (Fig. 23a numeral 2305) of said at least one color (see rejection of claim 1 above. The object for determining authenticity is determined to be a color outside the gamut of a conventional printer); and

forming a third group of scanned documents not having said particular pixel locations corresponding to said correct pixel locations, and into a fourth group of scanned documents

having said particular pixel locations corresponding to said correct pixel locations, so that said scanned documents in said third group being probably counterfeit, and said scanned documents in said fourth group being possibly authentic (see rejection of claim 1 pertaining to document sorting according to authenticity).

Mennie fails to disclose determining particular pixel locations in each of said second group of scanned documents.

Alattar, in the same field of endeavor, teaches determining an additional characteristic from the group of possibly authentic documents ("A detector 34...detects the component colors" at paragraph [34]. "A signature is determined for a subject spot color based on the color components" at paragraph [35]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to conduct a second detection operation after detecting a first characteristic of authenticity as taught by Alattar where the component colors are first detected and a signature is determined according to the component colors with the method disclosed by Mennie et al in which documents are discriminated according to authenticity because the additional detection would provide heightened security for the detection of authentic documents.

Regarding claim 10, Mennie in view of Lee and Voellmer discloses the apparatus as recited [in] claim 8, further comprising:

means for noting correct pixel locations of said at least one color in said authentic document ("From the above selections, the system 10 determines what master information to learn from the bill(s) to be processed in the learn mode" at column 38 lines 37-39);

means for determining particular pixel locations of said color in each of said second group of scanned documents (The system 10 next determines in step 2305 the lateral position of the bill in relation to the bill transport path by using the "X" sensors" at column 42 lines 40-43); and

means for forming a third group of scanned documents not having said particular pixel locations corresponding to said correct pixel locations, and into a fourth group of scanned documents having said particular pixel locations corresponding to said correct pixel locations, so that said scanned documents in said third group being probably counterfeit, said scanned documents in said fourth group being possibly authentic (Detector as described in claim 6 above).

Response to Arguments

5. Applicant's arguments filed May 22, 2008 have been fully considered but they are not persuasive.

Regarding Applicant's remarks alleging Lee is of no help in disclosing using custom colored ink to produce an out of gamut color lying in the differential gamut volume lying outside the printable colors gamut volume (previously rejected in the Final Action dated February 22, 2008) but inside both the gamut of object colors and physically recognizable colors in a 3-dimensional color space as now claimed.

Examiner disagrees. Absent a clear definition for the “gamut of object colors” and utilizing the universally known gamut of physically realizable colors in a 3-dimensional color space, Examiner cites the above portion of Lee as reading on the custom colored ink within the gamut of object colors. The gamut of object colors simply introduces the third gamut of colors which would be obtained by adding the custom color to the basic colors printable by the printer. The newly obtained gamut would obviously include the gamut printable by the printer as well as being included in the 3-dimensional color space, which contains all colors realizable by a human.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMARES WASHINGTON whose telephone number is (571)270-1585. The examiner can normally be reached on Monday thru Friday: 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, King Poon can be reached on (571) 272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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August 13, 2008